

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 63-222421

(43)Date of publication of application : 16.09.1988

B25

(51)Int.Cl.

H01L 21/205

(21)Application number : 62-055173

(71)Applicant : NEC CORP

(22)Date of filing : 12.03.1987

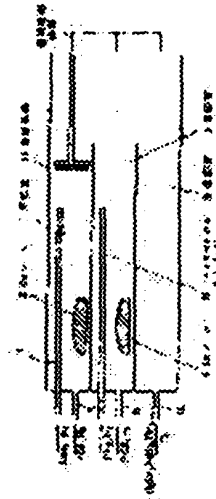
(72)Inventor : USUI AKIRA

## (54) EPITAXIAL GROWTH METHOD FOR ATOMIC LAYER OF III-V COMPOUND SEMICONDUCTOR

### (57)Abstract:

**PURPOSE:** To make it possible to grow high quality regular mixed crystals and a super lattice structure, by supplying the chloride of a group III element, forming an absorbing layer, and repeating a process for supplying a group VI element on a substrate crystal for a specified time.

**CONSTITUTION:** A substrate crystal 11 is put in a reaction chamber 9. The temperature in the chamber is increased to a growth temperature in a PH<sub>3</sub> stream. When the growth temperature is reached, HCl and PH<sub>3</sub> are supplied into a reaction chamber 3. After a specified time, the crystal 11 is moved into the reaction chamber 3. After an InP buffer layer is grown by about 1  $\mu$ m, the crystal 11 is returned into the reaction chamber 9 again. The supply of PH<sub>3</sub> into the reaction chamber 3 is stopped, and an atmosphere including only InCl is made to remain. Then the crystal 11 is moved and exposed to the InCl. After the InCl is absorbed, the crystal 11 is returned into the reaction chamber 9. The crystal 11 is moved into the reaction chamber 3. This cycle is repeated by 10 times. Thus the high quality regular mixed crystals and a super lattice structure can be grown.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]